

State of California
Office of Statewide Health Planning and Development
Facilities Development Division
Structural Engineering Section

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Standard Structural and Anchorage Review Comments
Based on the 2007 California Building Standards Code

Applicable to single-story Type V skilled nursing or intermediate care facilities utilizing wood-frame or light steel-frame construction for projects **received after October 1, 2008**.

(a) Marked plans and response

The structural and anchorage comments are shown on this set of drawings in red pencil. Each comment is identified by a number such as S-1, S-2, S-3, etc, and is enclosed in a cloud.

The text of standard structural comments called out on the review set by "2007(a)" etc, can be found in the attached list of standard structural comments.

The comments all refer to California Code of Regulations (CCR) Title 24 Part 1 Section 7-125(b) unless another section of either Title 24 Part 1 or Part 2 is specifically cited.

In order to facilitate the back check, please respond in writing to each comment. Your response may be in the form of a letter or each response may be written on this final review set of drawings near the comment in a color other than red or green. If the responses are presented in a letter, identify the comment by drawing sheet number and the comment number. In either case, each response should specify how and where on the resubmitted drawings, specifications, or calculations the OSHPD comments have been resolved.

If you have any questions, please do not hesitate to call the Structural Reviewer:

(name)

(phone)

(b) Equipment Anchorage (less than 400 #)

Show the following note prominently on the plans:

"Attachments of equipment weighing less than 400 # and supported directly on the floor or roof structure, furniture or temporary or movable equipment and equipment weighing less than 20 # that is supported by vibration isolation devices suspended from the roof, wall or floor need not be detailed on the plans. (2007 CAC Section 7-125(c)(3)C Exceptions). However, such equipment must be supported and anchored to resist the forces prescribed by ASCE 7 Chapter 13 as amended by the 2007 CBC Section 1613, and the anchorage shall be approved by the Structural Engineer of Record and OSHPD as a part of field reviews / inspections. The Inspector of Record shall assure that the above requirements are enforced. "

(c) Intent of the Drawings

Due to the difficulty of anticipating every unsatisfactory condition that may arise in connection with an existing facility where alteration or reconstruction work is proposed, the following clause or one of similar meaning shall be included on the plans or in the specifications:

"The intent of the drawings and specifications is to reconstruct the building in accordance with the 2007 California Building Code (2007 CBC). Should any condition develop not covered by the contract documents wherein the finished work will not comply with said Code, a change order detailing and specifying the required work shall be submitted to and approved by OSHPD before proceeding with the work."

The above is required by CCR Title 24, Part 1, Section 7-125(b)(1).

(d) Pipe and Duct Supports

Provide calculations and details for the support and bracing of all pipes, ducts, and conduits. If a pre-approved system is specified for the bracing, calculations and details for the supporting structure are still required. Only pre-approvals specifically approved for the 2007 CBC shall be used. Once the exact location of all pipes, ducts, and conduits have been established, the structural engineer must check the adequacy of the supporting structure to ensure that the original design is still adequate.

(e) Equipment Anchorage

Provide details on the plans or in the specifications and substantiating calculations (when necessary) for the support and anchorage of fixed equipment (See the CAC 2007 Section 7-111 for definition) if:

- a. The equipment has an operating weight over 400 pounds and is mounted directly on the floor or roof, or:
- b. The equipment has an operating weight over 20 pounds and is suspended from the roof, floor, or wall or is supported by vibration isolation devices.

Equipment must be anchored if it is permanently attached to the building utility services such as electricity, gas, or water. For the purposes of this requirement, "permanently attached" shall include all electrical connections except three-prong plugs for duplex receptacles.

The details must be clearly coordinated with the calculations and the manufacture's literature. Sketches shown in the calculations for the purpose of illustrating the analytical method are not adequate. OSHPD does not approve calculations; therefore, they cannot appear on the approved plans or specifications.

These details and calculations may not necessarily be the responsibility of the Structural Engineer of Record. Reference CCR Title 24, Part 1, Section 7-125(c)(2)(L), 7-125(c)(4)(M), and 7-125(c)(5)(L).

(f) Vibration Isolators

For all vibration isolators and their anchorages, provide calculations, details, and / or test data to substantiate the isolator's capacity for vertical and lateral loads or use OSHPD pre-approved isolators. If the anchorage is not pre-approved, then calculations must also be submitted to substantiate the size, quantity, location and connection to structure of the isolator. The drawings must be closely coordinated with the calculations and clearly specify the manufacturer, model type, model number, base plate size, quantity used and location at each piece of equipment, and how it is attached to the structure. Isolators which support a component inside the prefabricated unit will not be reviewed.

(g) Post-Installed Anchors

For all Post-Installed anchors show on the plans or in the specifications the manufacturer, type, diameter, minimum embedment, concrete type(s) and strength(s). Show the actual magnitudes of the test loads on the contract documents. Testing is required per the 2007 CBC Section 1912.2.

(h) Not used

(i) Signature - Structural Engineer

All final structural drawings and specifications shall bear the structural engineer's stamp or seal, signature, and expiration date per California Business and Professions Code, Section 6735 and CCR Title 24 Part 1 Section 7-115(a).

(j) Not used

(k) Not used

(l) Not used

(m) Geologic Hazards Report

Provide a geologic and earthquake engineering report per Section 1802.7.

(n) Soils Report

Provide a soils report per Section 1802.6 & 1802.8.

(o) Separate the substantiating documentation from the post approval contract documents to be stamped "Approved" by OSHPD and bind them separately. OSHPD only approves plans and specifications, it does not approve substantiating documentation such as calculations, cost estimates, manufacturer cut sheets, etc. These substantiating documents should be submitted if they are required for approval of the contract documents but they shall not be bound with the contract documents to be stamped "Approved". Clearly identify the documents to be stamped "Approved" by numbering all of the sheets which comprise changes to the existing OSHPD "Approved" contract documents. Provide a cover sheet with a complete index of the documents to be stamped "Approved". Changes to the existing OSHPD "Approved" contract documents must be identified by clouding them on the plans or identifying them by some other means.

(p) Equipment Not In Contract (NIC)

For all new or relocated equipment to be installed under the scope of this application and designated as "by others" or "not in contract," it is the responsibility of the architect and / or the structural engineer in responsible charge of the project to sign and submit the necessary drawings, specifications, and design calculations to OSHPD for review and approval. Alternatively, exclude the equipment from the plans and the scope of this application. All equipment thus excluded can be installed only after obtaining the approval of OSHPD under a separate application.

(q) Kitchen Equipment

Provide calculations and details for the support and anchorage of all kitchen equipment that is to be permanently fastened to the building or utilities.

(r) Equipment Anchorage Approval

Equipment anchorage details must be approved by OSHPD, prior to fabrication and installation, in one of the following ways:

- a. If the equipment has been specified such that anchorage details can be determined, then the details must be shown on the drawings or in the specifications. No reference to "or equal" is allowed unless it is clearly specified that any "or equal" substitutions must be approved by OSHPD by means of a change order, or:

- b. Where the anchorage details cannot yet be determined, then their approval will be **deferred** if all of the following conditions are met:
- 1) The anchorage cannot be fully detailed on the approved drawings or specifications because of variations in product design or manufacture; e.g., the manufacturer has not yet been chosen, or specified equipment is for performance criteria only.
 - 2) All items requiring deferred approval must be listed under a separate heading on the drawings, preferably on the title sheet, and on a letter size sheet which will be attached to the building permit. This list must include the maximum weight of the equipment for which the supporting structure was designed. Clearly indicate that OSHPD approval of the deferred portion is required prior to fabrication and/or installation.
 - 3) The drawings and specifications must fully describe the performance and loading criteria for such work. The design of the supporting building structure cannot be deferred; therefore, show the maximum allowable equipment weight on the drawings. When the equipment is chosen, the adequacy of the supporting structure can be substantiated by comparing the actual equipment weight to the maximum allowable equipment weight shown on the plans.
 - 4) The architect and / or engineer responsible for preparation of drawings and specifications for the main project, as listed on the applications, shall sign the drawings and specifications for the deferred approval items.
 - 5) The anchorage details and calculations must be submitted sufficiently in advance of the desired date of approval to provide time for the initial review by OSHPD and at least one cycle of response and back check review.

(s) Grab Bars

Show on the plans details of how grab bars and / or tub and shower seats, located in handicapped toilets and shower stalls, are connected to the supporting structure. See Section 1607.7.2, CBC 2007 for required strength.

(t) Television Brackets

The design of wall or ceiling mounted television and monitor brackets shall comply with the ASCE 7 Chapter 13 as modified by Section 1613. The design shall include: 1) The connection of the bracket to the structure; 2) The supporting structure; 3) The bracket itself; and 4) The connection of television and monitor to bracket.

(u) Fire Sprinklers

Show a note on the plans or in the specifications requiring that the spacing and details of the support and bracing of fire sprinkler piping comply with the 2002 edition of NFPA 13 with applicable SFM amendments. Provide anchorage details and calculations for the connection of sway bracing to the structure. Design loads for the anchorage shall be calculated per ASCE 7 Section 13.6.8.2 & 13.6.8.3. Where applicable, details for the support and bracing may be referred to an OSHPD pre-approved anchorage system. All shop drawings of the sprinkler system shall be submitted to OSHPD for review and approval prior to installation. The allowable values for anchors shall be per CBC 2007 Section 1911 or 1912 subject to limitations there in. Refer to Code Application Notices (CANs) 1912A.1 for limitations on allowable loads for the specific fastener type.

(v) Tests and Inspections

A Testing, Inspection and Observation (TIO) program must be developed (specifying Tests and Special Inspections only), submitted and approved during the plan review process. See Section 7-141, Title 24, Part 1 for requirements. An acceptable TIO form can be down loaded from the OSHPD web site.

OSHPD must approve the TIO program including the individuals and / or firms who will perform the specified tests and / or inspections prior to issuance of a building permit.

(w) Not used

(x) Not used

(y) Incomplete submittals

The following comments are based on a preliminary or incomplete submittal. A more thorough review will be made upon resubmittal and additional comments will follow.

(z) Not used